

New from AccelSoft in 2002 Look for New Releases and New Products Early Next Year

AccelSoft will be offering an exciting new product beginning January 1, 2002:

Beamline Simulator (c)

The popular Beamline Simulator™ program developed by Dehnel Consulting Ltd (DCL) of Canada will be available from AccelSoft and its international distributors. Beamline Simulator for Windows offers simulated real-time beam tuning which gives the user an experience similar to live tuning in a control room. Check out the DCL website at www.dehnel.com for more information on Beamline Simulator.

Version 1.2 of the LIDOS RFQ Designer™ will begin shipping early next year. A new feature of this release is the ability to simulate the acceleration of positive and negative ions simultaneously. Current users will automatically receive this upgrade to version 1.2.

PBO Lab 2.1 is also scheduled for final release early in 2002. The new release includes several user requested enhancements for both the Basic Package and for the TRANSPORT, TRACE 3-D, TURTLE, MARYLIE, DECAY-TURTLE, and ElectroStatic Palette Modules. AccelSoft wants to thank all of the users who have been working with the various beta releases of version 2.1, and who have provided us with many useful suggestions, comments and bug reports.

MANY THANKS TO ALL OUR USERS, OLD & NEW!

AccelSoft welcomes all of the new users who have become customers during the new millennium. We also thank all of the many individual users at the long-time institutional customers of AccelSoft. We especially welcome the new customers from the following organizations who joined our growing user community during 2000 and 2001:

- Accsys Technology (USA)
- Argonne National Laboratory* (USA)
- Brookhaven National Laboratory* (USA)
- CLRC Daresbury* (United Kingdom)
- Dehnel Consulting Ltd. (Canada)
- Forschungszentrum Rossendorf (Germany)
- Indiana University* (USA)
- Institute of Geologic & Nuclear Sci. (New Zealand)
- Institute of Modern Physics Lanzhou (China)
- International Isotopes Incorporated (USA)
- J. W. Goethe University (Germany)
- Japanese Atomic Energy Research Institute* (Japan)
- KEK Laboratory for High Energy Physics* (Japan)
- KLA Tencor (USA)
- Kobe Steel Company (Japan)
- Laboratori Nazionali di Legnaro (Italy)
- Lawrence Livermore National Laboratory* (USA)
- Los Alamos National Laboratory* (USA)
- Michigan State University (USA)
- Mitsubishi Electric* (Japan)
- Nissin Electric Company (Japan)
- Nissin Ion Equipment Company (Japan)
- Okazaki National Research Institute (Japan)
- SAIC (USA)
- Stanford Linear Accelerator Center* (USA)
- Texas Tech University (USA)
- Tsukuba University* (Japan)
- University of California at Los Angeles* (USA)
- University of Hawaii (USA)
- University of Maryland (USA)
- University of Michigan (USA)
- University of Munich (Germany)
- Varian Semiconductor* (USA)
- Vinca Institute of Nuclear Sciences (Yugoslavia)
- Yale University (USA)
- Wakasawau Energy Research Institute (Japan)

*Denotes Multiple User Institution

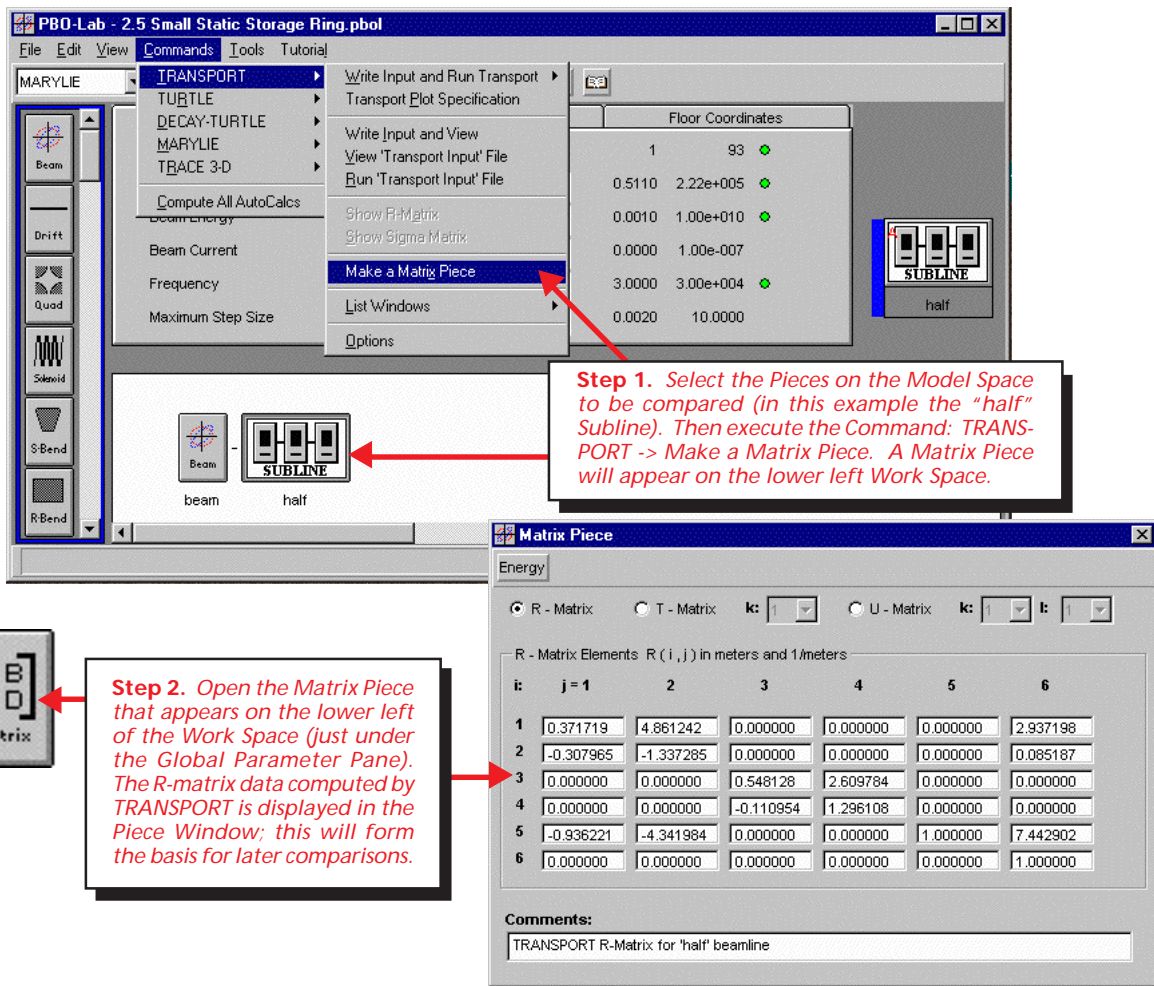


Tips, Tricks & Shortcuts

Comparing TRANSPORT, TRACE 3-D and MARYLIE Beamlines

One of the key features of PBO Lab 2.0 is the ability to easily run several optics codes from the same basic graphic user interface (GUI). Traditionally, comparing the results of codes which have quite markedly different input formats, such as TRANSPORT, TRACE 3-D and MARYLIE, has been a true tour de force for all but the simplest examples, especially if the user did not have a "translator" to convert one input file format to another. With PBO Lab, many comparisons are readily carried out using only a few automated steps that are built into the interface.

The figures on pages 2 and 3 sketch out how to compare the first order properties (R-matrix) for a given beamline, as computed by TRANSPORT, TRACE 3-D and MARYLIE. The example uses one half of the Los Alamos 800-MeV Proton Storage Ring (PSR), as modeled by a file contained in the MARYLIE Examples on the PBO Lab 2.0 CD. The basis of comparison is the TRANSPORT R-matrix. The TRANSPORT R-matrix may be viewed in several ways, but for the easiest comparisons, creation of a PBO Lab Matrix Piece is recommended. Steps 1 and 2 illustrate the procedure.



Step 1. Select the Pieces on the Model Space to be compared (in this example the "half" Subline). Then execute the Command: TRANSPORT -> Make a Matrix Piece. A Matrix Piece will appear on the lower left Work Space.

Step 2. Open the Matrix Piece that appears on the lower left of the Work Space (just under the Global Parameter Pane). The R-matrix data computed by TRANSPORT is displayed in the Piece Window; this will form the basis for later comparisons.

i:	j = 1	2	3	4	5	6
1	0.371719	4.861242	0.000000	0.000000	0.000000	2.937198
2	-0.307965	-1.337285	0.000000	0.000000	0.000000	0.085187
3	0.000000	0.000000	0.548128	2.609784	0.000000	0.000000
4	0.000000	0.000000	-0.110954	1.296108	0.000000	0.000000
5	-0.936221	-4.341984	0.000000	0.000000	1.000000	7.442902
6	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000

Comments:
TRANSPORT R-Matrix for 'half' beamline

*** ACCELERATOR NEWS BULLETIN ***

The U.S. Particle Accelerator School (USPAS) will be using PBO Lab in the following January 2002 course:

Course Title: Accelerator and Optics for Proton Therapy Applications

Instructors: George Coutrakon, George Gillespie

Location & Dates: Long Beach, CA, 21-25 Jan 2002

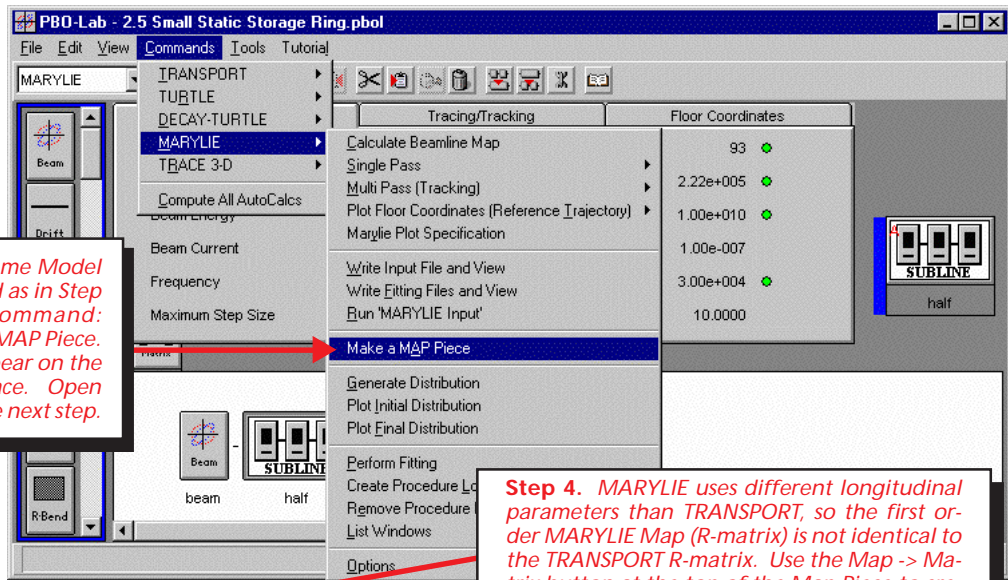
Website Contact: <http://www-lib.fnal.gov/uspas>

The data contained in the PBO Lab Matrix Piece are in units of meters (& radians) or inverse meters (& radians). This TRANSPORT computed R-matrix can then be compared to results from either MARYLIE or TRACE 3-D. Steps 3 and 4 illustrate how to obtain the equivalent MARYLIE computed R-matrix. Steps 5 and 6 show how to obtain the R-matrix for TRACE 3-D.

(continued on next page)

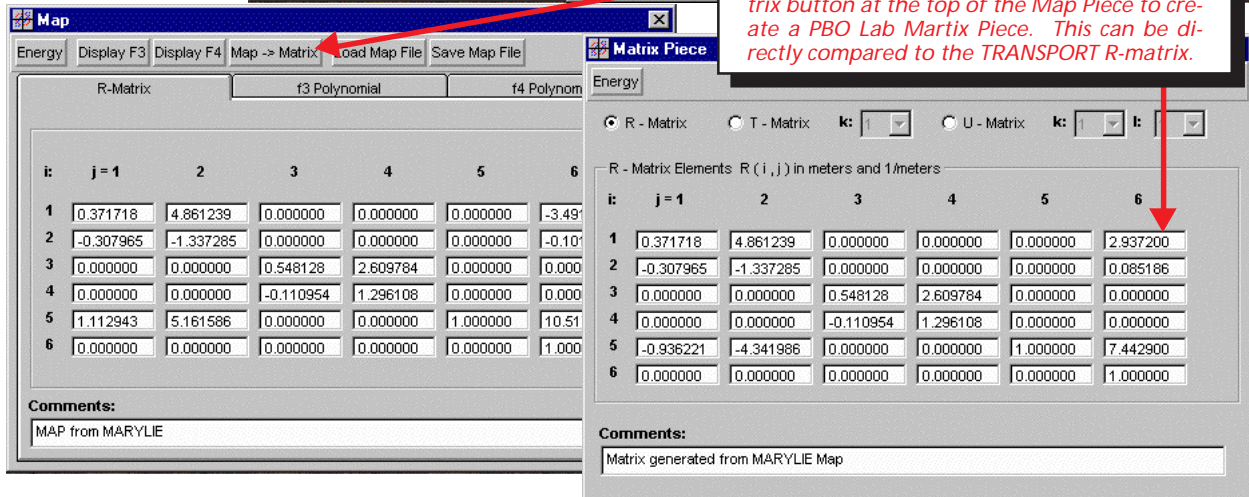
Tips, Tricks & Shortcuts

Comparing TRANSPORT, TRACE 3-D and MARYLIE (continued)



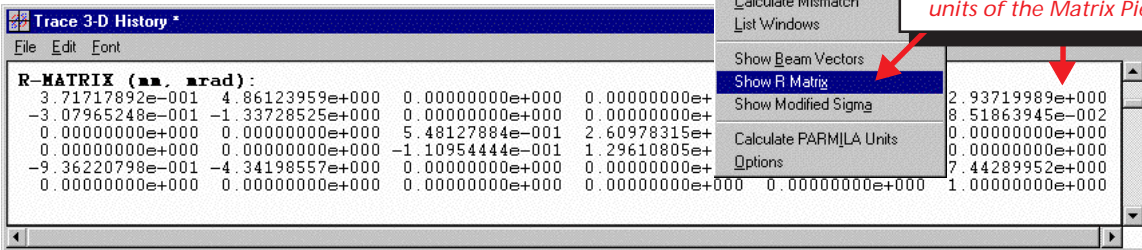
Step 3. With the same Model Space Pieces selected as in Step 1, execute the Command: MARYLIE -> Make a MAP Piece. A Map Piece will appear on the lower left Work Space. Open the Map Piece for the next step.

Step 4. MARYLIE uses different longitudinal parameters than TRANSPORT, so the first order MARYLIE Map (R-matrix) is not identical to the TRANSPORT R-matrix. Use the Map -> Matrix button at the top of the Map Piece to create a PBO Lab Matrix Piece. This can be directly compared to the TRANSPORT R-matrix.



Step 5. Move any Pieces not to be included in the TRACE 3-D R-matrix to the Work Space (or place the initial Beam Piece and a Final Piece immediately before and after the Pieces to be included). Adjust the Global Energy, if necessary, to account for any energy gain in the unused Pieces. Make sure the Beam Current is zero, otherwise the TRACE 3-D R-matrix will include the space charge terms. Then execute the Command: TRACE 3-D -> Graph Beam Line.

Step 6. The R-matrix is computed implicitly by the Graph Beam Line Command. To view the R-matrix, use the Command: TRACE 3-D -> Show R Matrix. The result will appear in the TRACE 3-D History window. Note that the mm & mrad units used by TRACE 3-D are equivalent to the m & rad units of the Matrix Piece.





**For data on current product offerings and other information,
contact AccelSoft directly or through your distributor:**

In Japan, South Korea and Taiwan:



ADVANCED ELECTRONICS TECHNOLOGY

email: info@aetjapan.co.jp
TEL: 044-9669981 FAX: 044-9511572

In Member States of the European Union:



PAC sprl

email: pac.sprl@skynet.be
TEL: +32 10 24 70 77 FAX: +32 10 24 72 20

***Season's Greetings to All
from AccelSoft Inc. and
G. H. Gillespie Associates, Inc.***

www.ghga.com/accelsoft

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P.O. Box 2813
Del Mar CA 92014